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March 9, 2011

Director, Air Enforcement Division
Office of Regulatory Enforcement
U.S. Environmental Protection Agency, Mail Code 2242-A
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460-0001

Subject: *United States v Equilon Enterprises, LLC*
Civil Action Number H-01-0978
Southern District of Texas entered August 21, 2001

Flaring and Tail Gas Incident Report – February 26, 2011
Shell Oil Products US, Puget Sound Refinery

Dear Sir or Madam:

Pursuant to Section VIII, Paragraph 136 of the consent decree in *United States v Equilon Enterprises LLC*, Civil Action Number H-01-0978, entered August 21, 2001 by the United States District Court for the Southern District of Texas, Shell Oil Products US submits the following information regarding a Hydrocarbon Flaring Incident, as defined in Paragraph 120(f), that occurred at the Puget Sound Refinery. The incident was investigated and a detailed report listing the root causes is included in the attached Incident Report.

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and that I have made a diligent inquiry of those individuals immediately responsible for obtaining the information and that to the best of my knowledge and belief, the information submitted herewith is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

If you have any comments or questions regarding this information, please contact Tim Figgie at (360) 293-1525.

Sincerely,

Susan G. Krienen
General Manager

Enclosure

cc (w/enclosures):

Director, Air Enforcement Division
U.S. Environmental Protection Agency
c/o Matrix Environmental & Geotechnical Services
120 Eagle Rock Avenue, Suite 207
East Hanover, NJ 07936

Director
NWCAA
1600 South 2nd Street
Mount Vernon, WA 98273

John Keenan
Office of Air Quality (OAQ-107)
US EPA – Region 10
1200 Sixth Avenue
Seattle, WA 98101

FLARING INCIDENT REPORT

Type of Incident: ☐ **Acid Gas / SWSG** ☐ **Tail Gas** ☒ **Hydrocarbon**

Brief Description of Incident:
On Feb 25 at approximately 10:50 PM the FCCU experienced an upset on the Debutanizer overhead system that resulted in excess flaring and required the FCCU to shutdown. An investigation into the incident found that excessive cooling caused over condensing in the debut overhead exchanges, which put back pressure on the debutanizer column and also caused loss of level in the overhead accumulator. This overpressured the debut column resulting in pressure relief to the plant flare system. At the time of the incident it was not clear what was causing the upset because this event had never been experienced before. Therefore, Operations shutdown the FCCU to allow for safe and proper investigation of the situation. The FCCU was restarted on Feb 26 at approximately 4:30 PM after plant personnel confirmed there was no mechanical blockage in the exchangers and the liquids in the debut system had been removed.

The over condensing was caused by low temperature of the cooling tower return water. To prevent a reoccurrence a differential pressure tag and alarm has been added to measure the pressure drop across the exchangers with defined operator actions should the situation arise again.

Incident Start Date:	2/25/2011	**Incident Start Time:**	10:50 pm
Incident End Date:	2/26/2011	**Incident End Time:**	8:00 pm

Estimated Sulfur Dioxide Emissions: (Attach below):	3,100 lbs (includes emissions from startup)	**Pounds**
SO2 lbs/hr = 0.995*(flare gas flow, MSCFH * 1000) * (Sulfur, vol% / 100) * (64.0648/379), where 0.995 is flare efficiency, 64 #/#-mole is the MW of SO2 and 379 is scf/#-mole		

Steps taken to limit the duration and/or quantity of sulfur dioxide emissions:
Flare gas recovery unit was operating and the FCCU was shutdown to reduce flaring.

ANALYSIS OF INCIDENT AND CORRECTIVE ACTIONS

No additional information attached

Primary and contributing causes of incident:
The root cause of this event was over condensing in the debutanizer column exchanger due to low temperature cooling tower return water.

Analyses of measures available to reduce likelihood of recurrence (evaluate possible design, operational, and maintenance changes; discuss alternatives, probable effectiveness, and cost; determine if an outside consultant should be retained to assist with analyses):
To prevent a reoccurrence a differential pressure tag and alarm has been added to measure the pressure drop across the exchangers with defined operator actions should the situation arise again.

Description of corrective action to be taken (include commencement and completion dates):
See above.

If correction not required, explain basis for conclusion:
See above.

The incident was the result of or resulted in the following (check all that apply):

- ☐ **Error from careless operation**
- ☐ **Equipment failure due to failure to operate and maintain in accordance with good engineering practice**
- ☒ **Sulfur dioxide emissions greater than 20 #/hr continuously for three or more consecutive hours**
- ☐ **Caused the number of Acid Gas or Tail Gas incidents in a rolling twelve-month period to exceed five**
- ☐ **None of the above**

Was the root cause identified as a process problem isolated within an SRP?

- ☐ **Yes (An optimization study of the affected SRP is required as part of the corrective actions identified above.)**
- ☒ **No**

The root cause of the incident was:

- ☒ **Identified for the first time since March 21, 2001**
- ☐ **Identified as a recurrence since March 21, 2001 (explain previous incident(s) below)**

Was the root cause of the incident a malfunction?

- ☐ **Yes (describe below)**
- ☒ **No**

Definition of Malfunction: ***Any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or failure of a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.***

REPORTING REQUIREMENTS

Submit initial report, supporting documents and assessment of stipulated penalties, if any, within 30 days of the incident to the EPA Regional Office and Northwest Clean Air Agency.

If at the time the first report is submitted (within 30 days of the incident), corrective actions have not been determined a follow-up report is required within 45 days of first report (unless otherwise approved by the EPA). Provide anticipated date of follow-up report.	Stipulated penalties do not apply to hydrocarbon flaring events.

Prepared By: _____Richard Jordan _____ Date: ___March 8, 2011___